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ABSTRACT

This paper analyzes Boston's decline in white enrollment, the effect school desegregation had on this decline and on racial balance, and whether school desegregation has led to resegregation in the school system. The data indicate that white public school enrollment began declining long before school desegregation. Boston's experience with school desegregation and white flight indicates that school desegregation was related to an increase in the pre desegregation white enrollment decline equivalent to about half the total decline in enrollment, about a two year additional loss (and perhaps less). This amounts to about 10,000 students, rather than the 20,000 figure cited by journalists. Furthermore, despite the prolonged defiance of Boston's leadership white enrollment has stabilized, as has racial balance. Moreover, the school desegregation plan did what it was supposed to do. It has dramatically desegregated the school system. There appears to be little or no resegregation. Boston is now among the more desegregated school systems in the country. (Author/AM)

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BOSTON'S EXPERIENCE WITH SCHOOL DESEGREGATION AND WHITE FLIGHT

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Introduction

Perhaps no issue is more shrouded in misconception than the issue of school desegregation's relationship to white flight. Journalists virtually always make the same error --usually undetected by the reading public -- of examining only white enrollment losses after school desegregation. If there is a loss of white enrollment, they conclude it must be due to school desegregation. Thus, a New York Times reporter recently observed that there has been a decline in Boston's public school enrollment of 20,000 white students since school desegregation and that all 20,000 white students had "dropped out" because of school desegregation.[1] This conclusion is based on the erroneous assumption that the decline in white enrollment began with desegregation. It did not.

This paper will attempt to analyze Boston's decline in white enrollment, the effect school desegregation has had on this decline and on racial balance, and finally whether school desegregation has led to resegregation in the school system. Boston desegregated in 1974 under a partial state plan ordered into effect by a federal district court, and in 1975 under an extensive citywide plan affecting almost all schools in the system. Yet, for more than a decade Boston had had a declining white population. This has been caused by a number of phenomena affecting most medium and large school districts in the U.S.[2] One of the most important of these is middle class suburbanization. Between 1950 and 1960, a total of 124,668 whites moved out of the city of Boston, resulting in a net gain of 187,521 in the surrounding suburban areas. Between 1960 and 1970, a total of 97,668 whites moved out of the city for a net gain of 206,663 whites in the suburbs.[3] This may be only minimally related to the

growth in the black population in Boston as areas like Charlestown and Central Boston lost blacks between 1950 and 1970, but also had a substantial loss of whites (15,788 in Charlestown and 19,020 in Central Boston).[4]

Another important factor affecting a decline in white population is the declining birth rate. Using the 1970 Census to standardize for both 1965 and 1975 births, the birth rate declined in all 14 counties in the state of Massachusetts. Statewide the decline was from 17.6 per 1,000 to 11.9. In Middlesex County, just north of Boston, the decline was from 18.3 per 1,000 to 11.3. In Berkshire County, a rural area in western Massachusetts, the birth rate decline was from 17.2 to 11.7, while in Suffolk County (which includes the city of Boston) the birth rate went from 20.0 to 11.5.[5]

These phenomena are reflected in the declining white enrollment in the Boston public schools shown in Table 1 and illustrated graphically in Figure 1. Figure 2 shows the decline in percentage white. This data verifies an important point almost totally ignored in the local and national debates over school desegregation. Because the decline in white enrollment did not begin with school desegregation, prohibiting or rescinding school desegregation will not stop it.

Having established that white public school enrollment began declining long before school desegregation, it is still legitimate to ask whether school desegregation accelerates that decline in any way. We can test this by using an interrupted time series methodology.[6] The interrupted time series has in its favor that it is policy oriented, simple in design, and can be used to test the impact of a policy on a single case. Data on white enrollment losses are divided into a pre desegregation series and a post desegregation series. A regression line is fitted to the pre desegregation series of white enrollment losses, and a t-test (called a Mood test) is calculated to test the significance

of the difference between the actual enrollment loss and the predicted enrollment loss in the desegregation year. This line is then projected for the post desegregation years in order to calculate the loss due to desegregation for subsequent years after the first.[7]

Figure 3 shows the white enrollment loss in each year before and after school desegregation. The dots indicate the white enrollment loss and the line shows the trend before desegregation. That portion of the line that extends from Fall 1974 through Fall 1976 is an estimate of the decline in white enrollment if Boston had not desegregated (a projection of the pre desegregation trend). Thus, an estimate of the loss due to desegregation can be obtained by subtracting the difference between the predicted loss in Fall 1974, Fall 1975, and Fall 1976 (represented by the line) and the actual loss in those years (represented by the dots).

Table 2 shows , in the first column, the significance of the difference between the predicted and the actual enrollment loss in the year of desegregation. It is statistically significant at the .0005 level indicating that this difference could not have occurred by chance. Columns 2, 3, 4, and 5 of Table2 show that the difference between the predicted enrollment loss and the actual enrollment loss (i.e. due to desegregation) is -4, 879 in Fall 1974 (Phase I), and -4, 852 in Fall 1975 (Phase II) and -200 in Fall 1976. Thus, the maximum estimate of the loss in white enrollment due to desegregation indicated by this method is not the total decline in white enrollment cited by journalists, but in fact is half that: about 10, 000. (See Appendix 1 for a discussion of another method and estimate of the loss due to desegregation.)

Furthermore, no matter what method is used to estimate the loss due to desegregation, such an estimate could be double the real loss. Robert Dentler, of Boston University, one of the court appointed experts who drew up the Boston desegregation plan for Phase II (1975) maintains that enrollment

was inflated prior to 1975, and thus the loss in that year may be mainly due to the difference between inflated enrollment in the prior year and real enrollment in 1975.[8] This means that the estimated loss due to desegregation could be as low as 5,000.

A second question that should concern us is whether this decline in white enrollment due to desegregation is long term. The method used in Figure 3 and Table 2 indicate that the loss in white enrollment due to desegregation is only 200 students this year -- almost no difference from what would have been predicted from the pre desegregation trend.[9] Thus, the effect of school desegregation on white enrollment losses could be a one time, short term effect resulting in an estimated two year additional loss.

Furthermore, some of this one time loss may in fact be reversible. The parochial school enrollment has increased from 35 percent of the school age population to more than 50 percent since school desegregation. While parochial schools are less expensive than private schools, they can still be an economic burden to large families. Thus, we can expect some of this one time effect to be reversed as children come trickling back into the public school system from the parochial schools.

It is important to understand how this white enrollment loss affects racial balance, since that is the central concern of school desegregation. Figure 4 shows the decline in percentage white in each year before and after desegregation. As Table 3 indicates, the difference between the predicted and the actual change in percentage white in Fall 1974 is statistically significant at the .005 level -- not likely to have occurred by chance. The difference between the predicted and the actual change in percentage white is -2.1 in Fall 1974, -2.4 in Fall 1975, and +1.1 in Fall 1976. Thus, while school desegregation had a negative

effect on racial balance during Phase I and Phase II, it was a one time, short term effect. The total change in percentage white is only -3.4 percentage points, due to the fact that by Fall 1976, there is less change in racial balance than would have been predicted from the pre desegregation trend because of a loss in minority enrollment. Clearly, concentrating only on white enrollment losses can give an incomplete picture of racial balance and occassionally lead to false predictions of subsequent losses, since racial balance is an important predictor of future losses.[10]

The underlying assumption of the debate over school desegregation's relationship to white flight is that is leads to resegregation. The fact is, however, that no one seems to have specifically measured this phenomenon, although it is obvious that if there are no whites left in a school district than it has become resegregated. Deciding which measure to use will depend on one's definition of resegregation. The index of dissimilarity used by Reynolds Farley (similar to that used by James Coleman) to measure "school desegregation" can be used to determine resegregation if resegregation is defined as increasing racial imbalance in the schools. The index of dissimilarity indicates the percentage of black students (or any combination of black and white students adding up to the number of black students equaling the percentage indicated) that would have to be reassigned in order for each school in the school district to have the same percentage of blacks and whites as in the whole school district.[11] As the racial balance changes in the school district each year, the criterion for each school changes accordingly.[12]

Table 4 shows the level of segregation in the Boston schools from Fall 1967 (the first year school by school data is available) through Fall 1976. The trend shows that each year before court ordered deseg-

regation, the Boston schools were becoming more segregated, with only a slight reversal of this trend in 1972. With court ordered desegregation in 1974, the level of segregation dropped dramatically by 22.2 points. In Fall 1975, the level of segregation dropped another 23.3 points due to the expansion of the desegregation plan. In the fall of 1976, the level of segregation dropped again, although insignificantly. Thus, if resegregation is defined as increasing racial imbalance in the schools, that is, as the increasing segregation of the enrolled blacks from the enrolled whites in the school system, then Boston's school system has not become resegregated. (See appendix 2 for another definition and analysis.)

Conclusion

Boston's experience with school desegregation and white flight indicate that school desegregation was related to an increase in the pre desegregation white enrollment decline equivalent to about half the total decline in enrollment -- about a two year additional loss (and perhaps less). This amounts to around 10,000 students, rather than the 20,000 figure cited so often by journalists. Indeed, it would have been a miracle if Boston had had no additional white decline at all, since elected officials were out on the streets leading demonstrations and urging boycott of the schools.

The fact is, however, despite the prolonged defiance of the city leadership, white enrollment has stabilized, as has racial balance. Moreover, the school desegregation plan did what it was supposed to do. It has dramatically desegregated the school system, and there appears to be little or no resegregation. Boston is now one of the more desegregated school systems in the country.

Table 1

BOSTON PUBLIC SCHOOL ENROLLMENT*

	Black	OM	Total Minority	White	Total Enr.
1963-64 (March)			21,097	70,703	91,800
1964-65 (est.)			22,508	69,919	92,427
1965-66 (Oct.)			23,919	69,136	93,055
1966-67			24,077	68,050	92,127
1967-68			25,482	66,959	92,441
1968-69	25,482	4,192	29,674	64,500	94,174
1969-70	27,276	4,955	32,231	62,656	94,887
1970-71	28,822	5,860	34,682	62,014	96,696
1971-72	30,681	6,539	37,220	59,390	96,610
1972-73	31,728	7,106	38,834	57,405	96,239
1973-74	31,963	8,091	40,054	53,593	93,647
1974-75	32,265	9,280	41,545	45,624	87,169
1975-76**	31,940	9,402	41,342	36,522	77,864
1976-77	29,690	9,008	38,698	31,476	70,174

*1963 through 1966 data obtained from Massachusetts State Department of Education; 1967 through 1974 data obtained from the Office of Civil Rights, HEW; 1975 data obtained from estimates of the Boston School Department

**Actual enrollment as of 2/06/76 (including K-12)

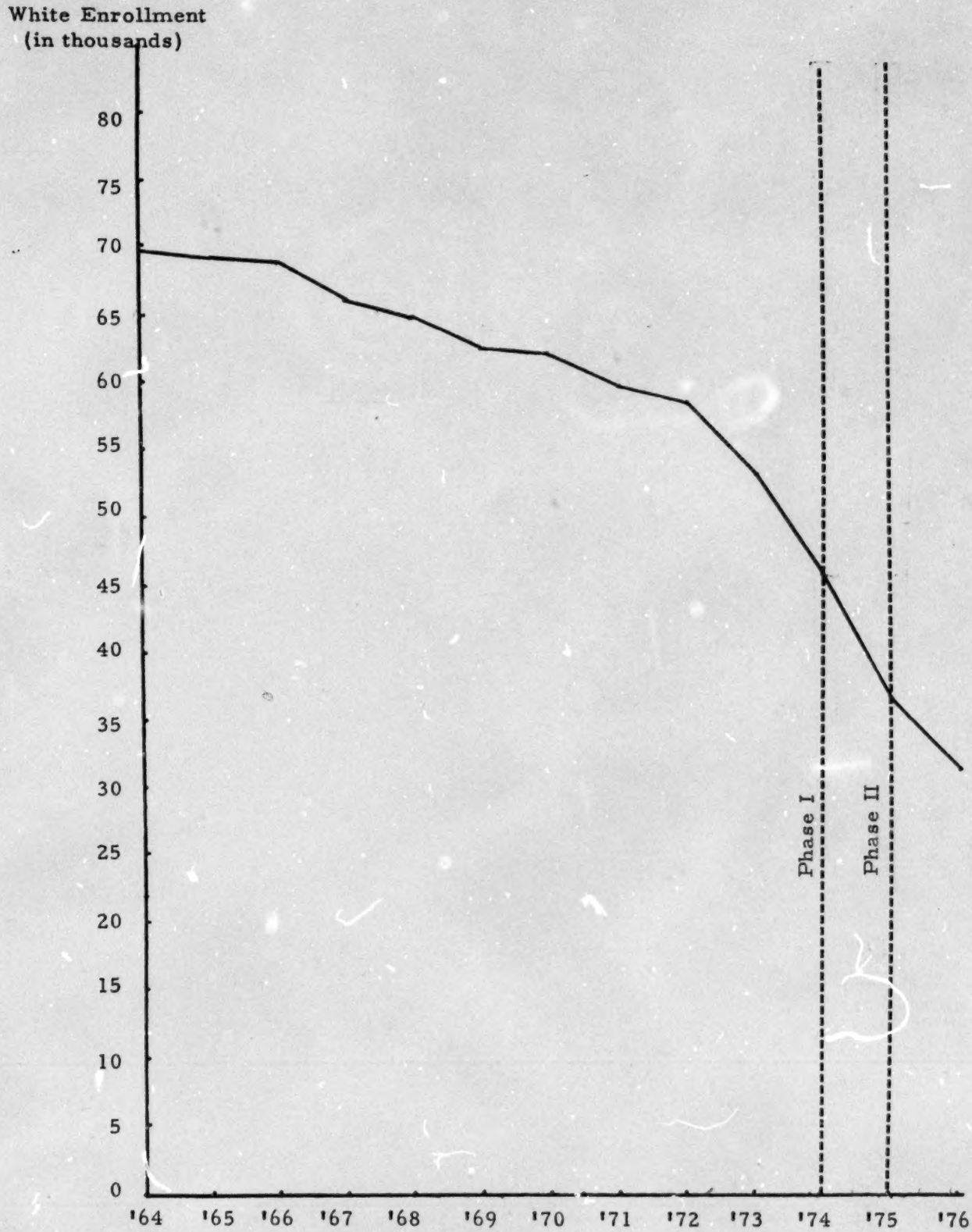

Figure 1: Total White Enrollment in the Boston Public Schools

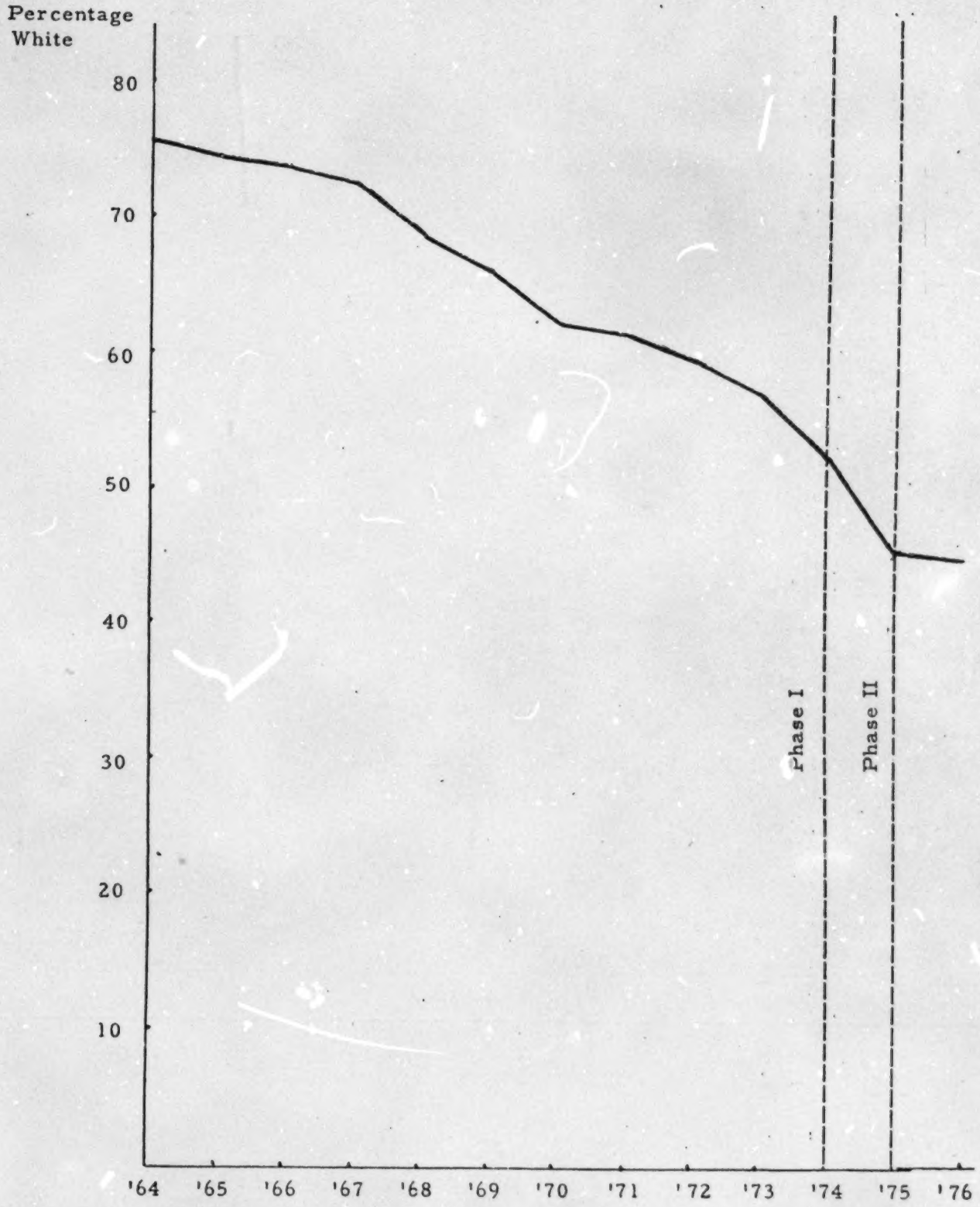

Figure 2: Percentage White Enrolled in Public Schools in Boston

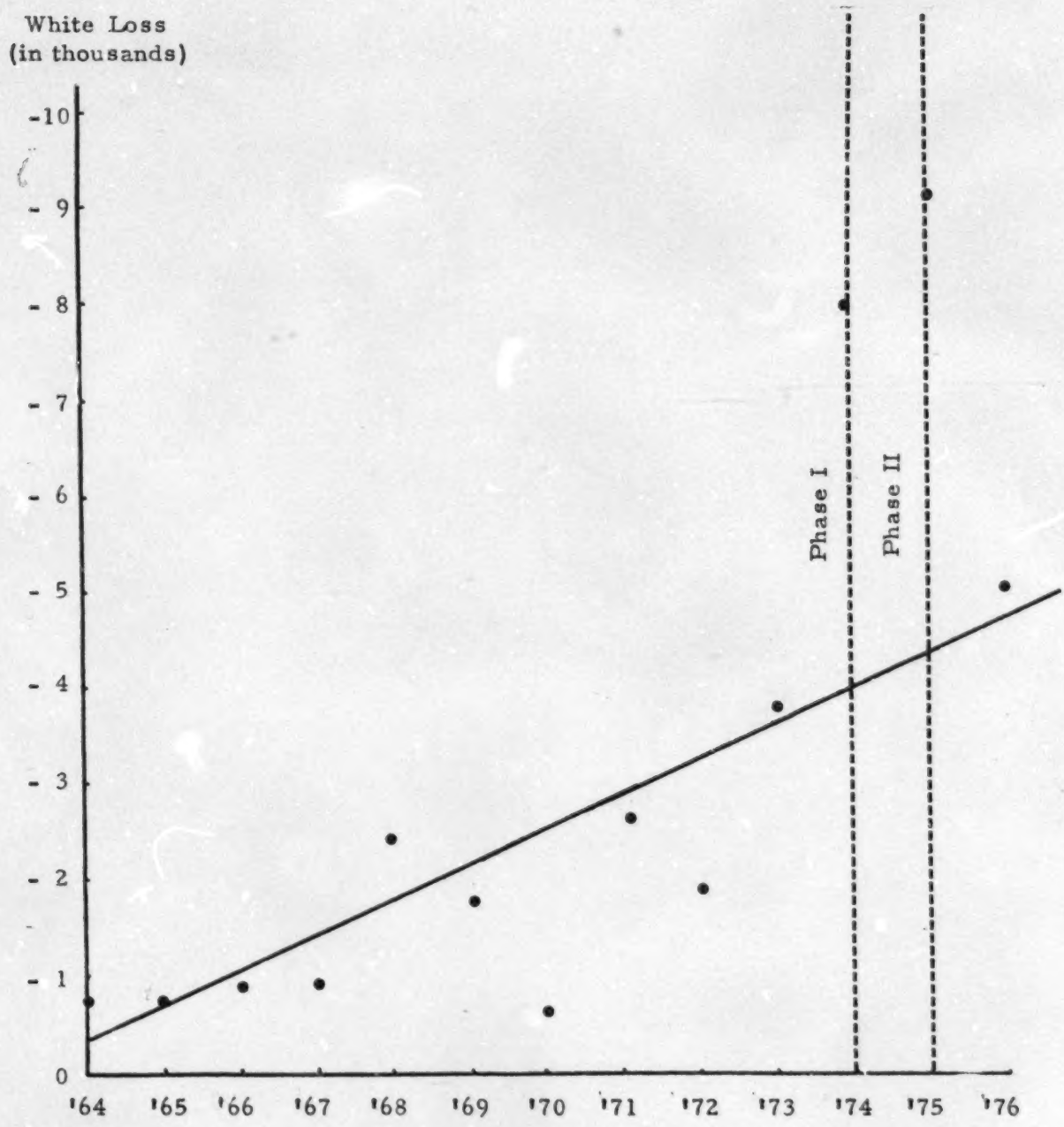

Figure 3: White Enrollment Loss Slope

Table 2

Boston's White Enrollment Loss Due to School Desegregation

Significance of Deseg. Year Loss (Fall 1974)	Loss Due to Deseg. in Fall 1974	Loss Due to Deseg. in Fall 1975	Loss Due to Deseg. in Fall 1976	Total Loss Due to Desegregation
.0005	-4,879	-4,852	-200	-9,929

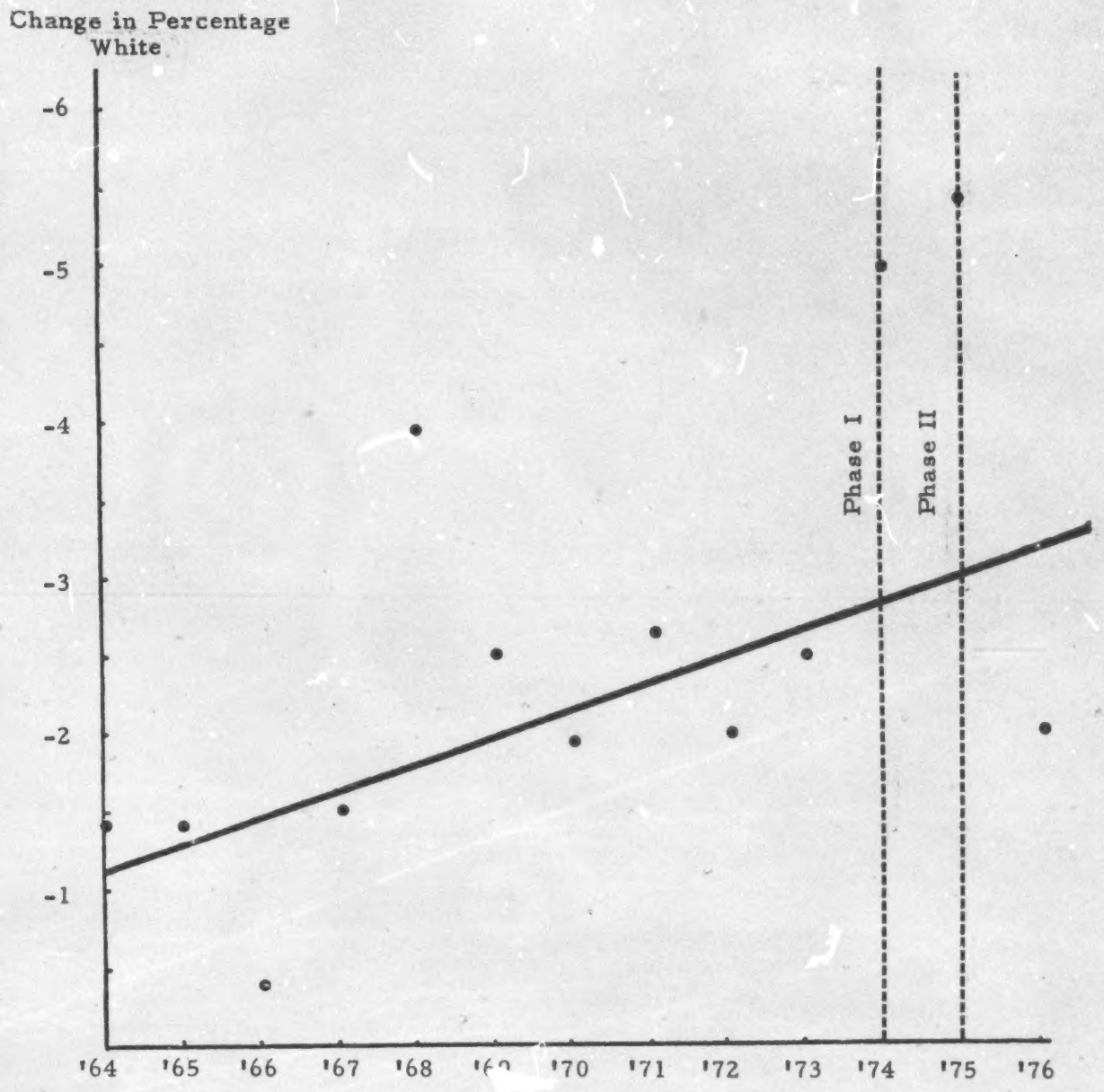

Figure 4: Change in Percentage White Slope

Table 3

Boston's Change in Percentage White Due to School Desegregation

Significance of Deseg. Year Loss (Fall 1975)	Loss Due to Deseg. in Fall 1974	Loss Due to Deseg. in Fall 1975	Loss Due to Deseg. in Fall 1976	Total Loss Due to Desegregation
.05	-2.1	-2.5	+1.1	-3.4

Table 4

The Level of Segregation in the Boston Public Schools

1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
70.2	72.8	74.2	75.1	76.1	73.5	72.4	50.2	26.9	26.2

Appendix 1

There are other ways of conducting an analysis to determine the loss due to school desegregation. One obvious (and theoretically more correct) way is to simply project the slope of white enrollment rather than white loss. The problem with this, however, is that in the case of Boston, the slope of white enrollment cannot be described by a straight line, and the theory on white "flight" from the public schools is not developed enough to give us a clear idea of what kind of slope is "normal." One way of verifying the loss due to desegregation estimated in the body of this paper is to examine the loss rate of similar school districts which have had no school desegregation, and then calculate Boston's normal loss using these rates. The universe of school districts in my 113 school district sample which have had no desegregation and were between 30 and 50 percent black in 1972 are compared to Boston in the table below. In this table, 1972 is used as the base year in order to eliminate any possible increase in 1973 due to anticipation of desegregation. It appears there is little anticipation effect in Boston that is detectable at the aggregate level. The pre 1972 loss rates for Boston and the control group are roughly comparable, although the control group's loss rate is somewhat lower than Boston in 1971 and higher in earlier years.

Boston Compared to School Districts Between 30 and 50 Percent Black in 1972

Boston Enrollment			Cumulative Loss Due to Deseg.	Control Group Loss Rate
Year	Predicted	Actual		
1972		57,405		
1973	53,674	53,593		-6.5%
1974	49,541	45,624	3,917	-7.7%
1975	45,627	36,522	9,105	-7.9%
1976	42,890	31,476	11,414	-6.0%

The projections of Boston's enrollment from the control group loss rate show results which differ in two ways from the one used in the body of this paper. First, the total loss of 11,414 due to desegregation is somewhat higher than what was predicted from Boston's pre desegregation loss of whites. Second, the Fall 1976 white enrollment loss predicted from the control group is a smaller loss than Boston actually had. This means that, although Boston's loss rate is down from the past two years, it could still be about 2300 higher than normal (compared to the 200 higher than normal predicted from the pre desegregation losses). Since analyses of other school districts appear to show a return to a normal loss rate by the third or fourth year after desegregation, there is some basis for expecting that if Boston has not returned to a normal loss rate this year, it will do so next year.

Appendix 2

Obviously my definition of resegregation does not cover all the possibilities, since it does not take into account a declining white enrollment which might in some situations provide blacks with less interracial contact despite the increased racial balance. This would be another way of assessing whether a school district is becoming resegregated. One suggestion has been to use Coleman's unstandardized measure of interracial contact. The formula is

$$s_{bw} = \frac{\sum_k n_{kb} p_{kw}}{\sum_k n_{kb}}$$

where s_{bw} is the proportion white in the average black child's school, n_{kb} is the number of blacks in each school, and p_{kw} is the proportion white in each school. This measure thus takes into account declining proportion white which may result in less interracial contact despite racial balance. However, I think it is important to point out that the unstandardized index has some of the same problems as the standardized index, and then some. For example, both indices show decreasing segregation (standardized index) or increasing interracial contact (unstandardized) in certain situations where there is an increasing black school enrollment, an expanding black ghetto and simultaneous white enrollment loss from the schools blacks expanded into. This is illustrated in the example below of a hypothetical school district over a period of three years.

Year 1

	Enrollment			%	
	Black	White	Total	Black	White
Total	10	25	35	28.6	71.4
School 1	5	10	15	33.3	66.7
School 2	5	5	10	50.0	50.0
School 3	0	5	5	0	100.0
School 4	0	5	5	0	100.0

unstandardized index of interracial contact: .583

Year 2

	Enrollment			%	
	Black	White	Total	Black	White
Total	12	23	35	34.3	65.7
School 1	5	10	15	33.3	66.7
School 2	5	5	10	50.0	50.0
School 3	2	3	5	40.0	60.0
School 4	0	5	5	0	100.0

unstandardized index of interracial contact : .586 (increase in contact)

Year 3	Enrollment			%	
	Black	White	Total	Black	White
Total	14	21	35	40.0	60.0
School 1	5	10	15	33.3	66.7
School 2	5	5	10	50.0	50.0
School 3	2	3	5	40.0	60.0
School 4	2	3	5	40.0	60.0

unstandardized index of interracial contact: .588 (increase in contact)

Although typically not large, such increases can give a misleading impression of increasing "natural" integration, and white flight as a result of it. (In this case, however, the loss is not from the integrated schools, but from the segregated schools.) This pattern characterizes most northern school districts in the late 60's and early 70's and is responsible for the fact that almost all of the school districts in Coleman's sample have increasing interracial contact, even without a desegregation plan. However, because they also have a declining white population, it might be very misleading to assume this increase will continue.

Not only does the unstandardized index have many of the same problems as the standardized index, but I personally find one assumption underlying the measure somewhat questionable. This assumption is that a system is becoming resegregated, that is interracial contact has declined, in any situation where the proportion white in the average black child's school decreases. One situation where I cannot equate a decrease in the proportion white in the average black child's school with resegregation is where the white population

is stable, and racial balance has increased, but due to a temporarily growing black population the index of interracial contact has declined. This is illustrated below with a hypothetical school district over a period of two years.

Year 1

	Enrollment			%	
	Black	White	Total	Black	White
Total	8	15	23	34.8	65.2
School 1	3	5	8	37.5	62.5
School 2	3	5	8	37.5	62.5
School 3	2	3	5	40.0	60.0
School 4	0	2	2	0	100.0

unstandardized index of interracial contact : .618
standardized index of dissimilarity : 13.4

Year 2

	Enrollment			%	
	Black	White	Total	Black	White
Total	12	15	27	44.4	55.6
School 1	4	5	9	44.4	55.6
School 2	4	5	9	44.4	55.6
School 3	4	5	9	44.4	55.6

(School 4 closed, students reassigned to School 3)

unstandardized index of interracial contact : .555 (decline in interracial contact)
standardized index of dissimilarity : 0 (increase in racial balance)

Despite the fact that there are more blacks in an interracial situation, that no whites have been lost, and that the schools have become perfectly balanced, using the unstandardized index of interracial contact, one would have to conclude that the school system was becoming resegregated. This is not necessarily the case.

Thus, it appears that one must be extremely cautious in predicting future interracial contact or resegregation from this index, given its dependence on two rapidly changing variables, black and white enrollment, which are currently difficult to project. If one is aware of these problems, the measure has a great deal of utility since

it gives us some additional information that the index of dissimilarity does not. The unstandardized index is compared to the standardized index for Boston below. The two indices are inversely correlated at -.50 (as segregation goes down, interracial contact goes up). However, the unstandardized index shows increasing racial contact between 1969 (rounded from .1065) and 1971, despite a rapidly declining white enrollment, decreasing proportion white, and increasing racial imbalance. Both indices show a decline in segregation

Boston	1968	1969	1970	1971	1972	1973	1974	1975	1976
unstandard. index	.108	.107	.107	.109	.120	.125	.327	.399	.381
index of dissim.	72.8	74.2	75.1	76.1	73.5	72.4	50.2	26.9	26.7
% White	68.5	66.0	64.1	61.5	59.6	57.2	52.3	46.9	44.9
% Change/White	-3.7	-2.9	-1.0	-4.2	-3.3	-6.6	-14.9	-19.9	-13.8
% Change/Black		7.0	5.7	6.4	3.4	3.4	.9	-1.0	-7.0

in 1972 and 1973, and a dramatic decline in 1974 with the advent of court ordered desegregation. Because the unstandardized index takes into account the declining proportion white in the school system, there is a proportionally smaller decline in segregation in the unstandardized index than in the standardized index. Furthermore, the unstandardized index shows a slight decline in interracial contact in Fall 1976, while the standardized index of dissimilarity shows a slight increase. Since the decline in black enrollment is fast approaching that of whites, the unstandardized index (the proportion of whites in the average black child's school) will probably remain fairly stable. Thus, the tentative conclusion regarding resegregation in Boston is that the system appears stable whether one measures segregation as the racial balance of schools or the proportion white in the average black child's school.

Footnotes

[1]John Kifner, "Blacks Gain an Edge in Boston Enrollment," New York Times, November 13, 1976.

[2]Gary Orfield discusses these factors in "White Flight Research: Its Importance, Perplexities, and Possible Policy Implications," in Gary Orfield, ed., Symposium on School Desegregation and White Flight (Washington, D.C.: Center for National Policy Review, 1975.

[3]1970 Census of Population, pp. 21 and 62; 1960 Census of Population, pp. 16, 78, 80; U.S. Department of Commerce, U.S. Bureau of the Census, Characteristics of Population, Census of Population and Housing, Vol. 1, 1950, p. 53.

[4]Boston Redevelopment Authority, Tabulations from 1950, 1960, and 1970 Censuses of Population and Housing Population B-4 and Population B-20.

[5]Massachusetts Department of Public Health, Annual Report of Vital Statistics, Commonwealth of Massachusetts.

[6]See Donald T. Campbell and Julian Stanley, Experimental and Quasi-Experimental Designs for Research (Chicago, 1963), pp. 47-48; Joyce A. Sween and Donald T. Campbell, "The Interrupted Time Series as Quasi-Experiment: Three Tests of Significance," (Northwestern University, 1965).

[7]The interrupted time series methodology has certain limitations. For one thing, while it can tell us whether or not school desegregation has any effect on white flight, it cannot by itself tell us what other factors are causes. In addition, the test indicates the significance of a relationship and the amount of loss due to desegregation, but it cannot tell us the strength of the relationship between school desegregation and white flight. Thus, we cannot predict precisely the loss in other school districts with different characteristics.

[8]Robert Dentler, Boston University, presentation CCC meeting, Sept. 1976, Boston.

[9]One can also fit a regression line to the percentage whites lost from the previous year. In a comparative study, this would certainly be more useful than using the number of whites lost as a measure of white flight. Using Boston's percentage whites lost to predict whether the post desegregation loss rate had returned to a normal loss might give us a misleading picture. As the base gets smaller and smaller, the same raw losses appear as larger and larger percentage losses. The failure to return to a normal loss rate in the subsequent years after implementation is in part a function of the size of the implementation year loss.

[10]Reynolds Farley, "Can Governmental Policies Integrate Public Schools," a paper presented at the annual meeting of the American Sociological Association, New York, September 1976.

[11]The computational formula is $T = 1/2 (N_i/N - W_i/W)$ and involves adding up all the black students (or minority students) in all schools with a black percentage (or minority percentage) greater than the school district percentage. The sum of the black students (or minority students) in these schools is divided by the school district black total (minority total). This sum is subtracted from the sum of the

white students in these schools divided by the school district white population, and the absolute value multiplied by 100 to make it a percentage. In my analysis, I only measure the segregation of blacks from whites. The index comes from Karl F. Taeuber and Alma F. Taeuber, Negroes in Cities (New York: Athenum, 1965, 1972), pp. 236-238.

[12]This is the accepted way of measuring racial balance or segregation established in Swann v. Charlotee-Mecklenburg (1970). Measures that do not change with the racial composition of a school district, such as defining as unbalanced all schools over 90 percent black, or the Massachusetts Racial Imbalance Act definition that all schools over 50 percent nonwhite are imbalanced, means that school districts over 90 percent black, in the former case, and school districts over 50 percent nonwhite in Massachusetts can only bring racial balance to all their schools by giving blacks scholarships to private schools.